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Farm Business Analysis Report

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1965 FARM BUSINESS ANALYSIS REPORT

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SECTION I
191 OHIO DAIRY FARMS

This is a summary of the 1965 farm account records kept by 191 Ohio dairy farmers. On these farms, 50% or more of the income was from milk sales. Typically, milk sales accounted for two-thirds of the total, and cull cows and veal calves another 10 per cent.

These farm records were analyzed individually, using an electronic computer. Then they were sorted into groups by computer, and each group was averaged to furnish the data presented here. The first sort was on income per operator--the net return for labor and management per full-time operator. The groups sorted were: High, 25%--the 48 farms with highest income per operator; low, 25%--the 48 farms with the lowest income per operator; and medium, 50%--those between the high and the low groups. In the tables that follow, compare these groups item by item, and note carefully those items pointed out in the discussion that follows each table.

TABLE 1. CASH RECEIPTS

	High 25%	Low 25%	Medium 50%
Milk and Cream	$29,287	$18,106	$18,224
Poultry and Eggs	367	512	574
General Crops	3,529	1,244	1,715
Special Crops	88	100	237
Cash Rent and Royalties	245	213	170
Labor Off Farm	194	111	213
Custom Work	449	175	238
Wool	1	28	1
Other Livestock Products	42	6	--
Tax Refund	215	160	159
Patronage Dividend	152	107	115
Breeding Fees Received	--	1	5
Miscellaneous Receipts	157	121	103
Government Payments	626	568	449
Market Livestock			
Swine	954	288	422
Cattle	2,734	2,169	2,007
Veal Calves	426	285	321
Lambs	1	77	1
Total Cash Receipts	$39,467	$24,271	$24,954

Note that the high group had much higher milk receipts and total receipts than either of the other groups. This is an indication of a greater volume of business.

TABLE 2. CASH EXPENSES

	High 25%	Low 25%	Medium 50%
Hired Labor	$ 1,998	$ 1,315	$ 855
Feed Purchased	5,524	4,476	3,383
Farm Supplies	857	496	444
Machinery Repairs	1,352	1,138	1,004
Building, Fence, Tile Repairs	326	279	428
Fuel, Oil and Grease	1,317	960	840
Telephone (farmshare)	85	82	78
Electricity (farm share)	517	397	353
Miscellaneous Expenses	580	487	441
Seeds and Plants	505	345	405
Fertilizer and Lime	2,894	1,727	1,736
Machine Hire and Trucking	478	384	455
Auto Expense (farm share)	322	264	249
Interest on Notes and Mortgage	1,661	1,354	1,050
Veterinary and Medicine	549	375	337
Breeding Fees and Registration	543	363	324
Feeder Livestock Purchase	860	818	689
Taxes	1,279	1,066	913
Cash Rent	810	105	392
Insurance	406	349	295
Total Cash Expenses	$22,863	$16,780	$14,671

Here note that the high group had higher expenses, particularly for hired labor, feed purchased and fertilizer and lime. These are variable expenses that tend to increase as volume or size of business is increased. Compare total cash expenses for the low and medium groups. Remember, they had the same volume of business, yet the low income group spent $2,000 more to get that volume.

TABLE 3. INCOME AND INVESTMENT

	High 25%	Low 25%	Medium 50%
Capital Gain or Loss			
Raised Breeding Stock	$ 618	$ 508	$ 365
Purchased Breeding Stock	- 42	37	4
Machinery and Equipment	- 6	- 19	- 29
Total Capital Gain or Loss	$ 570	$ 526	$ 398

	High 25%	Low 25%	Medium 50%
Net Inventory Change			
Raised Breeding Stock	$ 1,965	$ - 62	$ 228
Market Livestock	348	-171	162
Grain, Hay and Supplies	1,324	-630	- 6
Total Inventory Change	$ 3,637	$ -863	$ 384
Depreciation			
Buildings, Fence, Tile	$ 1,260	$ 1,074	$ 890
Machinery and Equipment	3,202	2,366	2,172
Purchased Breeding Stock	125	31	22
Total Depreciation	$ 4,587	$ 3,471	$ 3,084
Capital Investment			
Purchased Breeding Stock	$ 904	$ 429	$ 262
Raised Breeding Stock	18,213	12,442	11,107
Market Livestock	581	515	505
Grain, Hay and Supplies	9,145	5,625	5,597
Machinery and Equipment	16,432	11,235	10,468
Buildings, Fences, Tile	20,612	21,161	14,239
Land	34,862	24,282	19,748
Total Capital Investment	$100,749	$75,689	$61,926
Capital Efficiency			
Interest Not Yet Charged (5%)	$ 3,377	$ 2,431	$ 2,046
Gross Income Per $1,000 Invested	425	305	404
Overhead Expenses			
Total	11,636	8,950	7,817
As Per Cent of Gross Income	27%	39%	31%
Income			
Gross Income	$ 42,814	$23,116	$25,047
Net Cash Income	16,604	7,491	10,283
Net Farm Profit	16,224	3,683	7,981
Family Labor & Management Income			
Total	12,847	1,252	5,935
Per Full-Time Operator	11,858	1,156	5,086
Net Margin %	30%	5%	24%

This table presents information used in calculating the various income figures. Capital gains or losses are reported for income tax purposes. Actually, raised breeding stock that is sold should be listed under capital gains, although many farmers recorded these sales under cash receipts, (Market Livestock, Cattle) as listed in Table 1.

Net Inventory Change measures the difference between beginning and closing inventories of livestock, feed and supplies. Depreciation is included as an annual expense. We did not include capital purchase expenses, nor change in inventory of machinery, equipment and real estate.

Capital investment is an average of beginning and closing inventories for all items. The high income group had a much higher capital investment than the other two groups.

Interest not yet charged was figured by taking 5% of the total capital investment and subtracting interest paid. (Interest on notes and mortgages--Table 2.)

Overhead expenses included Building, Fence, Tile Repairs; Interest on Notes and Martgage; Taxes, Insurance, Depreciation and Interest not yet charged.

Gross income is total cash receipts (Table 2.) minus feeder livestock purchases (Table 2.) ± total inventory change (Table 3.). Net cash income is total cash receipts minus total cash expenses. Net farm profit is net cash income plus total inventory change, minus total depreciation. Family labor and management income is net farm profit minus interest not yet charged (Table 3.). Net margin is family labor and management income as a per cent of gross income. Family labor and management income per full-time operator is calculated by converting "months operator labor" Table 6 to years of operator labor and dividing family labor and management income by this figure.

Comparing the figures under Capital Efficiency, the high and medium income groups had higher gross income per $1,000 invested figures, indicating that more of their capital was working capital, or possibly that it was working harder. Overhead expenses as a per cent of gross income is another measure of efficiency in use of capital. Note the differences between groups for this item and also for the last row of figures under income, net margin, since these two sets of figures are closely related.

TABLE 4. CROP SUMMARY

	High 25%		Low 25%		Medium 50%	
	Acres	Yield	Acres	Yield	Acres	Yield
Crop Production						
Corn	65	81	39	66	37	76
Soybeans	15	29	7	21	10	23
Oats	14	70	9	63	13	66
Wheat	19	39	17	30	14	33
Alfalfa Hay	71	3.1	44	3.2	51	3.3
Clover, Mixed Hay	6	3.2	16	2.2	10	2.5
Green Chop	1	21	2	11	2	10
Corn Silage	26	14	19	11	14	13
Grass Silage	6	12	2	6	4	10
Other	3		3		2	
Special Crops	—	—	1	—	1	—
Total Harvested Crop Acres	226		159		158	

	High 25% Acres Yield	Low 25% Acres Yield	Medium 50% Acres Yield
Value of Crops			
Fed on Farm	$12,464	$ 9,410	$ 9,172
Cash Sales	3,616	1,344	1,951
Change in Inventory	1,324	- 630	- 6
Total Value of Crops	$17,404	$10,124	$11,117
Value of Crops Per Harvested Acre	$ 77	$ 64	$ 70
Machinery			
Investment Per Harvested Crop Acre	$ 73	$ 71	$ 66
Machinery Costs	$ 7,494	$ 5,673	$ 5,245
Machinery Costs Per Harvested Crop Acre	$ 33	$ 36	$ 33

In Table 4, observe the differences in crop yields between groups. Some of this may be due to differences in land quality, but part of it is fertilizer use and cropping practices. Value of crops per harvested acre is a single measure that combines yield and crop prices for an easy comparison of crop production efficiency. There was quite a bit of difference between groups in this factor.

TABLE 5. DAIRY SUMMARY

	High 25%	Low 25%	Medium 50%
Value of Feed Fed			
Crops Fed	$12,464	$ 9,410	$ 9,172
Purchased Feed	5,524	4,476	3,383
Pasture	323	406	364
Total Value Feed Fed	$18,311	$14,292	$12,919
Value of Net Livestock Increase	$35,841	$20,966	$21,625
Returns per $1.00 Feed Fed	$1.96	$1.47	$1.67
Number of Cows	55	38	36
Pounds of 3.5% Milk Sold			
Total	741,741	460,628	466,799
Per Cow	13,509	12,041	12,711
Per Man Equivalent	361,485	270,529	274,455
Dairy Products Sold			
Total	29,287	18,106	18,224
Per Cow	533	473	503
As Per Cent of Gross Income	68%	78%	73%
Cost of Producing Milk	$23,312	$20,907	$17,425
Cost Per Cwt. Milk Sold	$3.17	$4.49	$3.74

In Table 5 there are comparisons of total value of feed fed, net livestock increase (sales, capital gains, inventory change, minus feeder livestock purchases) and a calculation of livestock returns per dollar of feed fed. This measures feeding efficiency, and there were important differences between groups in this factor. Observe that the high income group included large herds with higher production per cow and per man. Their cost of producing milk was lower because of higher productivity and efficiency in feeding and use of capital. This cost of producing milk includes interest on investment, $300 per month for operator labor and $200 per man month equivalent for other unpaid labor. The difference between cost of producing milk and price received for milk would be management income and net profit. Dividing total sales by pounds wold indicates that the price received per cwt. was very nearly the same for all three groups, ranging from $3.90 to $3.95; yet cost of production ranged from $3.17 for the most efficient group to $4.49 for the least efficient, all on the basis of 3.5% milk.

TABLE 6. LABOR EFFICIENCY

	High 25%	Low 25%	Medium 50%
Production Man Work Units			
Crops	159	112	111
Dairy	439	306	290
Swine	3	1	1
Beef Cows	--	--	--
Cattle Fattened	--	--	--
Chickens	5	6	8
Sheep	--	--	--
Total PMWU	606	425	410
Months Operator Labor	13	13	14
Man-year Equivalents of Labor	2.1	1.7	1.7
PMWU Per Man Equivalent	289	250	241
Gross Income Per Man Equivalent	$20,388	$13,598	$14,734

In Table 6, a production man work unit is a standard labor requirement, representing 10 hours of labor at standard efficiency levels. To get an indication of labor requirements in hours, multiply the P.M.W.U. figures by 10. The high income group had good levels of labor efficiency as measured by P.M.W.U. and gross income per man equivalent.

TABLE 7. DAIRY FARMS--SPECIAL SORTS

	Herd Size		
	High 25%	Low 25%	Medium 50%
Herd Size	67 cows	23 cows	38 cows
Income per operator	$7,511	$4,215	$5,521
Net margin %	21%	24%	23%
Overhead %	31%	32%	32%
Returns per $ feed fed	$1.77	$1.64	$1.67
Cost of producing milk	$3.61	$3.84	$3.75
Production per cow	13,132 #M	12,834 #M	12,541 #M
	Production Per Cow		
	High 25%	Low 25%	Medium 50%
Production per cow	15,234 #M	9,840 #M	12,850 #M
Income per operator	$7,473	$3,947	$5,843
Net margin %	25%	19%	22%
Overhead %	30%	33%	31%
Returns per $ feed fed	$1.91	$1.55	$1.66
Herd Size	44 cows	36 cows	43 cows
Cost of producing milk	$3.34	$4.50	$3.66
	Cost of Producing Milk		
	High 25%	Low 25%	Medium 50%
Cost of producing milk	$5.04	$2.89	$3.68
Income per operator	$1,214	$10,543	$5,775
Net margin %	6%	33%	22%
Overhead %	38%	27%	31%
Returns per $ feed fed	$1.48	$2.00	$1.66
Production per cow	10,938 #M	14,077 #M	12,984 #M
Herd size	37 cows	45 cows	42 cows

Table 7 presents data from the same 191 dairy farms, but sorted on different factors. The first of these sorts was on herd size, with the high 25% including the 48 largest herds, the low 25% the 48 smallest, and the middle 50% the 95 in between. The high group averaged 67 cows, the low 23 cows--quite a bit of difference in size. Income per operator went up as herd size increased. The large farms had higher returns per dollar of feed fed and slightly higher production per cow; indications that farmers with large herds can do at least as well as those with small herds on a per cow basis for these two factors.

The section of the table headed Production Per Cow presents data from these 191 farms sorted on that basis. The high 25% represents the 48 highest producing herds, the low 25% the 48 lowest producing herds, etc. The

low group averaged less than 10,000 pounds per cow on a 3.5 per cent basis, the high group over 15,000 pounds. Again, income was higher with the higher production, even though herd size was nearly the same. Returns per dollar of feed fed were much higher for the higher producing herds, and cost of producing milk was much lower for them. There was a difference of $1.16 per cwt. in cost of producing milk between the high and low production groups. In some individual cases, high producing herds had very high feed costs, resulting in high cost of producing milk and low profits. Generally, however, the higher producing herds were more profitable.

The last section of Table 7 is headed Cost of Producing Milk, and the 191 farms were sorted on this factor. Here the high cost farms had lowest income per operator. Note how much difference there was between the high and low cost groups in cost of production and income per operator. Remember, income per operator is what is left for labor and management after paying all other expenses, cost of producing milk includes a "wage" for labor. The high cost group did not actually receive as high a wage as we calculated when figuring cost of production, the low cost group actually received a much higher wage. Such factors as production per cow, returns per dollar of feed fed and overhead costs were very important to cost of production and net income.

SECTION II
29 OHIO CROP FARMS

This section summarizes the 1965 farm account records kept by 29 Ohio crop farmers. On these farms, 50% or more of the income was from the sale of crops, primarily grain. Typically, crop sales accounted for two-thirds or more of total sales, and government payments (mostly related to crop production) accounted for an additional 5-10%.

These farm records were analyzed and then sorted into three groups based on net return to labor and management per full-time operator. The groupings were: High 25%--the 7 farms with the highest operator income, low 25%--the 7 farms with the lowest operator income, and medium 50%, those between the high and low groups. The tables that follow present this data by groups for each item or analysis factor computed. The discussion that follows each table points up some of the more significant differences between groups.

TABLE 1. CASH RECEIPTS

	High 25%	Low 25%	Medium 50%
Milk and Cream	$ --	$ 596	$ 319
Poultry and Eggs	--	428	226
General Crops	26,109	10,183	14,250
Special Crops	568	126	450
Cash Rent and Royalties	24	32	52
Labor Off Farm	900	148	241
Custom Work	1,192	502	690
Wool	19	30	13
Other Livestock Products	--	--	--
Tax Refund	379	175	215
Patronage Dividend	167	109	178
Breeding Fees Received	--	--	1
Miscellaneous Receipts	863	238	127
Government Payments	1,279	1,036	1,406
Market Livestock			
Swine	1,290	1,923	2,241
Cattle	350	757	3,175
Veal Calves	--	--	17
Lambs	16	115	60
Total Cash Receipts	$33,156	$16,398	$23,661

The high income group had more than twice as high total cash receipts as did the low group. They had much higher receipts from crops, indicating that they were more specialized in crop production.

TABLE 2. CASH EXPENSES

	High 25%	Low 25%	Medium 50%
Hired Labor	$ 1,490	$ 269	$ 378
Feed Purchased	777	942	899
Farm Supplies	1,128	221	410
Machinery Repairs	1,362	752	1,063
Building, Fence, Tile Repairs	155	52	33
Fuel, Oil and Grease	2,010	945	1,073
Electricity (farm share)	139	106	145
Telephone (farm share)	59	42	39
Miscellaneous Expenses	305	180	476
Seeds and Plants	1,042	352	638
Fertilizer and Lime	4,981	2,325	2,880
Machine Hire and Trucking	708	331	258
Auto Expense (farm share)	234	232	235
Interest on Notes and Mortgage	1,386	552	988
Veterinary and Medicine	15	64	127
Breeding Fees and Registration	--	4	9
Feeder Livestock Purchase	46	245	3,952
Taxes	774	720	790
Cash Rent	80	10	453
Insurance	281	250	239
Total Cash Expense	$16,972	$ 8,594	$15,085

In Table 2, note that the high income group also had higher expenses, in most cases in direct proportion to their higher receipts. There are a few exceptions to this. Hired labor was a larger item on the high income farms because they needed more labor than the family provided. Taxes and insurance were nearly the same for all groups. Building and fence repairs were very low, but machinery and other crop costs made up a large proportion of the total.

TABLE 3. INCOME AND INVESTMENT

	High 25%	Low 25%	Medium 50%
Capital Gain or Loss			
Raised Breeding Stock	$ 279	$ 55	$ 69
Purchased Breeding Stock	44	10	37
Machinery and Equipment	--	71	1,259
Total Capital Gain or Loss	$ 323	$ 136	$ 1,365

Net Inventory Change			
Raised Breeding Stock	$ 279	$-1,396	$ 407
Market Livestock	863	123	3,382
Grain, Hay and Supplies	4,440	- 770	2,520
Total Inventory Change	$ 5,582	$-2,043	$ 6,309
Depreciation			
Buildings, Fence, Tile	$ 720	$ 293	$ 684
Machinery and Equipment	3,098	1,480	2,120
Purchased Breeding Stock	3	34	38
Total Depreciation	$ 3,821	$ 1,807	$ 2,842
Capital Investment			
Purchased Breeding Stock	$ 34	$ 42	$ 198
Raised Breeding Stock	139	901	503
Market Livestock	975	1,164	3,324
Grain, Hay and Supplies	15,263	5,357	10,064
Machinery and Equipment	17,555	8,470	11,364
Buildings, Fences, Tile	11,047	6,646	9,173
Land	43,656	43,213	48,963
Total Capital Investment	$88,669	$65,793	$83,589
Capital Efficiency			
Interest Not Yet Charged (5%)	$ 3,048	$ 2,738	$ 3,192
Gross Income Per $1,000 Invested	440	215	313
Overhead Expenses			
Total	9,465	6,119	8,084
As Per Cent of Gross Income	24	43	31
Income			
Gross Income	39,015	14,175	26,124
Net Cash Income	16,184	7,804	8,576
Net Farm Profit	18,268	4,019	12,149
Family Labor & Management Income			
Total	15,220	1,281	8,957
Per Full-Time Operator	18,523	1,794	8,579
Net Margin %	39	9	34

Table 3 presents information that was combined with data from Tables 1 and 2 in calculating various measures of income, and also efficiency in use of capital.

The first section, Capital Gain or Loss, reports the net income from sale of capital items such as breeding stock and machinery.

Net Inventory Change measures change in inventory of production items. This is important in getting a true picture of the year's production and income.

Capital investment is an average of beginning and closing inventories, representing average investment for the year. Gross income per $1,000 invested is a measure of efficiency in use of capital. The High income group got twice as much "work" out of each $1,000 of capital as the low income group did.

Interest not yet charged was calculated by taking 5% of Total Capital Investment and subtracting Interest on Notes and Mortgages from this.

Overhead expenses include building, fence and tile repairs, interest on notes and mortgages, taxes, insurance, depreciation, and interest not yet charged. These might also be termed fixed expenses. Note that there was not a very great difference between groups in amount of overhead expenses, but quite a bit of difference in overhead as a per cent of gross income.

Gross income is total cash receipts minus feeder livestock purchases plus total inventory change. This is a measure of total production for the year, expressed in dollars. The high group had more than twice as much gross income as the low group, yet their overhead expenses were only 50 per cent higher.

Net cash income is total cash receipts minus total cash expenses. Net farm profit is net cash income plus total inventory change, minus total depreciation (all from Table 3.). Family labor and management income is net farm profit minus interest not yet charged. Net margin is family labor and management income as a per cent of gross income. Net margin provides a single measure of economic efficiency, or profitability of the farm business. The medium and high groups did very well in this respect; the low group "earned" a very low wage for their labor and management.

TABLE 4. CROP SUMMARY

	High 25%		Low 25%		Medium 50%	
	Acres	Yield	Acres	Yield	Acres	Yield
Crop Production						
Corn	240	111	69	88	106	99
Soybeans	132	33	62	24	64	29
Oats	30	106	11	67	9	83
Wheat	40	36	31	43	29	45
Alfalfa Hay	25	2.9	6	2.9	6	4.7
Clover, Mixed Hay	--	--	10	2.3	5	2.9
Green Chop	--	--	1	10	--	--
Corn Silage	--	--	--	--	1	19
Grass Silage	--	--	--	--	4	7
Other	8	--	7	--	2	--
Special Crops	10	--	1	--	3	--
Total Harvested Crop Acres	485		198		229	

	High 25%	Low 25%	Medium 50%
Value of Crops			
Fed on Farm	$ 98	$ 2,778	$ 2,774
Cash Sales	26,676	10,308	14,699
Change in Inventory	4,440	- 770	2,520
Total Value of Crops	$31,214	$12,316	$19,993
Value of Crops Per Harvested Acre	64	62	87
Machinery Investment Per Harvested Crop Acre	36	43	50
Power and Machinery Costs	$ 8,290	$ 4,164	$ 5,316
Power and Mach. Costs Per Harvested Crop Acre	17	21	23

The crop summary in Table 4 presents acres and yields of each crop. The high income group had more than twice as many acres plus higher yields as compared to the low group.

Value of crops per harvested acre was calculated from total value of crops and total harvested crop acres. This provides a single measure of intensity of crop production. The medium group had a surprisingly high value, the high group disappointingly low.

Machinery investment per acre and power and machinery costs per harvested crop acre in large part reflect the size of business. The greater the acreage, the lower these figures tend to be.

TABLE 5. LABOR EFFICIENCY

	High 25%	Low 25%	Medium 50%
Production Man Work Units			
Crops	329	146	162
Dairy	--	18	7
Swine	5	9	15
Beef Cows	--	1	--
Cattle Fattened	2	4	16
Chickens	--	5	2
Sheep	--	3	1
Total	336	186	203
Months Operator Labor	10	9	13
Man-Year Equivalents of Labor	1.4	.8	1.3
PMWU Per Man Equivalent	240	233	156
Gross Income Per Man Equivalent	$27,868	$17,719	$20,095

Productive man work units were calculated to measure labor output. One PMWU is equivalent to 10 hrs. of work at standard rates of accomplishment. PMWU per man provides a measure of labor efficiency. Here the medium income group was low, the other two groups quite close together. Because of the seasonal labor peaks of crop production, total labor efficiency for the year tends to be lower for crop farms than for livestock farms. Gross income per man equivalent was quite good for all three groups, and particularly good for the high income group.

These same 29 crop farms were also sorted on the basis of value of crops per harvested acre. The more pertinent data from this sort is presented in Table 6.

TABLE 6. VALUE OF CROPS PER HARVESTED ACRE

	High 25%	Low 25%	Medium 50%
Value of crops per harvested acre	$ 115	$ 50	$ 74
Income per operator	$11,536	$ 8,280	$ 9,779
Harvested Acres	201	373	280
Operator income per harvested acre	$ 57	$ 22	$ 35
Acres owned	122	71	131
Land inventory per acre owned	$ 472	$ 355	$ 388
Fertilizer expense per harvested acre	$ 18	$ 11	$ 10
Yield of corn	118 bu.	89 bu.	106 bu.
Percent of cropland in:			
Corn	58%	47%	41%
Soybeans	19%	21%	36%
Hay	4%	12%	2%

When sorted on this basis, the groups show quite a bit of difference in the factor sorted on. They did not show much difference in income, probably because the high group had fewer acres, offsetting the advantage they had in higher income per acre. It was also interesting that the high group had a higher proportion of acres owned and a higher land inventory per acre. They used more fertilizer and had higher yields. They also had a higher proportion of their land in corn and a low proportion in hay. Actually, value of crops per harvested acre is a better measure of productivity than it is of profitability. It is an important ingredient in the profit formula, but size of business and economic efficiency are even more important.

SECTION III
13 OHIO BEEF FARMS

This group summarizes the 1965 farm account records of farms with 50% or more of the income from cattle sales. Cattle sales made up the major proportion of the farm income, supplemented by crop sales, swine, and government payments.

Again, these records were analyzed, sorted and averaged, all by electronic computer. They were sorted on the basis of net return to labor and management per full-time operator. The top 25% were placed in the high group, the bottom 25% in the low group and the middle 50% in the medium group. The tables present the averages for each group, item by item, as they were analyzed, and some explanation of the data and significant comparisons are pointed out in the paragraphs that follow each table.

TABLE 1. CASH RECEIPTS

	High 25%	Low 25%	Medium 50%
Milk and Cream	$ --	$ --	$ --
Poultry and Eggs	--	--	1,142
General Crops	14,785	5,572	2,272
Special Crops	2,655	1,340	--
Cash Rent and Royalties	809	325	161
Labor Off Farm	--	--	143
Custom Work	1,474	86	537
Wool	--	177	20
Other Livestock Products	--	--	175
Tax Refund	259	288	189
Patronage Dividend	40	243	100
Breeding Fees Received	--	--	--
Miscellaneous Receipts	2,043	41	41
Government Payments	6,585	3,499	997
Market Livestock			
Swine	7,656	129	3,405
Cattle	78,603	65,920	49,706
Veal Calves	--	--	--
Lambs	--	1,185	116
Total Cash Receipts	$114,909	$78,805	$59,004

In Table 1, total cash receipts for the high income group were quite a bit higher than for the other two groups, indicating a greater volume of business. The low group had greater sales than did the medium group, indicating that greater volume alone does not produce higher incomes. These were cattle feeding farms, and total receipts are a little misleading because a part of those receipts are from sale of cattle that had been purchased. Only a part of these sales represent production on these farms. This will become more obvious in Table 3 where gross income figures are presented.

TABLE 2. CASH EXPENSES

	High 25%	Low 25%	Medium 50%
Hired Labor	$ 2,609	$ 733	$ 362
Feed Purchased	15,613	26,511	10,742
Farm Supplies	1,818	355	614
Machinery Repairs	2,202	1,848	912
Building, Fence, Tile Repairs	848	405	379
Fuel, Oil and Grease	2,009	1,251	1,128
Electricity (farm share)	302	493	215
Telephone (farm share)	37	72	55
Miscellaneous Expenses	1,065	217	190
Seeds and Plants	1,637	855	557
Fertilizer and Lime	6,963	4,631	3,071
Machine Hire and Trucking	1,036	1,752	549
Auto Expense (farm share)	430	244	245
Interest on Notes and Mortgage	6,251	4,428	1,823
Veterinary and Medicine	486	467	375
Breeding Fees and Registration	--	--	--
Feeder Livestock Purchase	45,735	39,607	27,163
Taxes	1,794	1,797	961
Cash Rent	6,247	150	578
Insurance	385	828	282
Total Cash Expense	$97,467	$86,644	$50,201

Table 2 presents cash expenses. Note that feed purchased was a large item for all groups, but particularly for the low income group. Note also that feeder livestock purchases was a very large item for each group. Total cash expenses were somewhat in proportion to total cash receipts, except for the low income group which had greater cash expenses than cash receipts. Their high feed bills seem to be a major factor contributing to this loss.

TABLE 3. INCOME AND INVESTMENT

	High 25%	Low 25%	Medium 50%
Capital Gain or Loss			
Raised Breeding Stock	$ 2,094	$ --	$ 336
Purchased Breeding Stock	--	-110	-30
Machinery and Equipment	55	--	-14
Total Capital Gain or Loss	$ 2,149	$ -110	$ 292
Net Inventory Change			
Raised Breeding Stock	$ -2,150	$ --	$ 75
Market Livestock	8,945	3,183	6,050
Grain, Hay and Supplies	12,951	6,526	3,234
Total Inventory Change	$ 19,746	$ 9,709	$ 9,359

Depreciation			
Buildings, Fence, Tile	$ 918	$ 1,846	$ 899
Machinery and Equipment	4,864	2,927	2,319
Purchased Breeding Stock	--	60	41
Total Depreciation	$ 5,782	$ 4,833	$ 3,259
Capital Investment			
Purchased Breeding Stock	$ 25	$ 1,397	$ 301
Raised Breeding Stock	1,125	--	948
Market Livestock	34,634	41,951	26,540
Grain, Hay and Supplies	20,845	23,014	9,768
Machinery and Equipment	25,045	13,930	10,514
Buildings, Fences, Tile	16,597	25,699	12,783
Land	144,056	72,967	41,143
Total Capital Investment	$242,327	$178,958	$101,997
Capital Efficiency			
Interest Not Yet Charged (5%)	$ 5,865	$ 4,520	$ 3,277
Gross Income Per $1,000 Invested	376	273	407
Overhead Expenses			
Total	$ 20,925	$ 16,811	$ 9,981
As Per Cent of Gross Income	23%	34%	24%
Income			
Gross Income	$ 91,014	$ 48,797	$ 41,506
Net Cash Income	17,442	-7,839	8,803
Net Farm Profit	33,500	-3,073	15,209
Family Labor & Management Income			
Total	27,635	-7,593	11,932
Per Full-Time Operator	27,635	-5,361	11,013
Net Margin %	30%	-16%	29%

Table 3 presents information that was combined with data from Tables 1 and 2 in calculating various measures of income and also efficiency in use of capital.

The first section, Capital Gain or Loss, reports the net income from sale of capital items such as breeding stock and machinery.

Net Inventory Change measures change in inventory of production items. This is important in getting a true picture of the year's production and income.

Capital investment is an average of beginning and closing inventories, representing average investment for the year. Gross income per $1,000 invested is one measure of efficiency in use of capital. Here the high and medium groups demonstrated efficient capital use.

Interest net yet charged was calculated by taking 5% of the total capital investment and subtracting interest on notes and mortgages. (Cash expenses, Table 2).

Overhead expenses included buildings, fence and tile repairs, interest on notes and mortgages, taxes, insurance, depreciation, and interest not yet charged. The high and medium groups had low overhead in proportion to their gross incomes. The low income group had comparatively high overhead. On efficiently operated farms, overhead expenses should not exceed 25-30% of gross income.

Gross income was calculated by taking total cash receipts minus feeder livestock purchases plus total inventory change. This measures total production for the year in dollars. Notice that gross income is somewhat lower than total cash receipts for this type of farm because of the feeder livestock purchases. The high income group had a very high gross income. The low income group had a higher gross income than did the medium group.

Net cash income is total cash receipts minus total cash expenses. The low income group lost money on a cash basis.

Net farm profit is net cash income, plus total inventory changes, minus total depreciation (all from Table 3).

Family labor and management income is net farm profit minus interest not yet charged. Net margin is family labor and management income as a per cent of gross income. This is a measure of economic efficiency. Both the high and the medium groups had a very favorable net margin. The high group had more than double the volume (gross) of the medium group, and hence more than double the net income. The low income group had a negative net margin, and operated at a loss. Perhaps the tables that follow will help pinpoint factors contributing to that loss.

TABLE 4. CROP SUMMARY

	High 25%		Low 25%		Medium 50%	
	Acres	Yield	Acres	Yield	Acres	Yield
Crop Production						
Corn	242	95	100	89	80	85
Soybeans	124	21	15	34	16	24
Oats	19	100	5	122	4	86
Wheat	54	49	19	43	28	35
Alfalfa Hay	--	--	22	3.4	13	2.8
Clover, Mixed Hay	5	2.5	5	--	15	2.0
Green Chop	--	--	2	--	--	--
Corn Silage	48	15	55	19	40	11
Grass Silage	--	--	10	6	2	10
Other	--	--	--	--	9	--
Special Crops	14	--	10	--	--	--
Total Harvested Crop Acres	506		243		207	

Value of Crops			
Fed on Farm	$17,745	$15,000	$11,644
Cash Sales	17,440	6,912	2,272
Change in Inventory	12,951	6,526	3,234
Total Value of Crops	$48,136	$28,438	$17,150
Value of Crops Per Harvested Acre	$ 95	$ 117	$ 83
Machinery Investment Per Harvested Crop Acre	$ 50	$ 57	$ 51
Power and Machinery Costs	$11,793	$ 8,718	$ 5,679
Power and Machinery Costs Per Harvested Crop Acre	$ 23	$ 36	$ 27

Table 4 presents the crop summary. In general, differences in yield were not great, but the high group had much greater crop acreages. Value of crops per harvested acre is a measure of cropping intensity and productivity. Here the low income group had the highest figure, but all three groups were very high.

Machinery investment per acre was similar for all groups. Power and machinery costs per acre were higher for the low income group, but in keeping with the higher crop value per acre. The relatively large acreage of silage harvested by this group probably accounts for the higher crop value and the higher power and machinery costs.

TABLE 5. LIVESTOCK SUMMARY

	High 25%	Low 25%	Medium 50%
Value of Feed Fed			
Crops Fed	$17,745	$15,000	$11,644
Purchased Feed	15,613	26,511	10,742
Pasture	550	28	169
Total Value Feed Fed	$33,908	$41,539	$22,555
Value of Net Livestock Increase	$49,413	$30,877	$33,832
Returns Per $1.00 Feed Fed	$1.46	$ .74	$1.50
Beef Cattle Fattened	311	365	216

In the livestock summary, feed costs are brought together, using average market prices for the home grown crops fed. The total feed bill on these farms was quite high. Net livestock increase was calculated by taking all cash receipts from livestock and livestock products, subtracting feeder livestock purchases, adding capital gain or loss from raised and purchased breeding stock, and net inventory change in raised breeding stock and market livestock. This net livestock increase measures total livestock production in dollars. Dividing it by total value of feed fed gives returns per dollar of feed fed--a measure of feeding efficiency. The high and medium income groups did very well for this type of farm, but the low group

received less than they put into their livestock. Again the high purchased feed bill seems to be the problem. In Table 3 this group had $6,526 increase in grain, hay and supplies inventory, which might account for some of the difference, but couldn't possibly account for all of the loss.

TABLE 6. LABOR EFFICIENCY

	High 25%	Low 25%	Medium 50%
Production Man Work Units			
Crops	354	170	144
Dairy	--	--	--
Swine	23	--	21
Beef Cows	--	7	9
Cattle Fattened	342	401	238
Chickens	--	--	17
Sheep	--	15	2
Total	719	593	431
Months Operator Labor	12	17	13
Man-Year Equivalents of Labor	1.8	1.8	1.4
Efficiency			
PMWU Per Man Equivalent	399	329	308
Gross Income Per Man Equivalent	$50,563	$27,109	$29,647

In table 6 a productive man work unit is a standard labor unit, representing 10 hours of man labor at standard efficiency levels. By calculating PMWU's and dividing by man year equivalents of labor we can measure labor efficiency. PMWU per man equivalent should be over 300 for this type of farm. The cattle feeding operations on these farms were probably highly mechanized, resulting in high levels of labor efficiency for all groups. The high income group had a larger proportion of their PMWU's from crops. The combination of large crop acreage plus a large, efficient cattle feeding operation worked very well for them. Note the high gross income per man for this group. Remember, they had $27,635 labor and management income for one operator and just under two man equivalents of labor. Favorable prices certainly helped them, but they could probably do quite well in all but the very poorest price years.

TABLE 7. RETURNS PER $1.00 FEED FED

	High 25%	Low 25%	Medium 50%
Returns Per $1.00 Feed Fed	$1.92	$0.72	$1.33
Beef Cattle Fattened	82	330	330
Feed Purchased	$ 2,749	$27,776	$15,713
Value of Crops Fed	$10,315	$23,811	$22,634
Crop Sales	$ 6,866	$ 7,337	$ 6,621
Income Per Operator	$10,571	$-3,384	$17,449
Net Margin %	34%	-9%	27%
Overhead %	28%	31%	24%

For Table 7, these farms were sorted by returns per $1.00 feed fed. This indicates the range of return and how some other factors were related to it or affected by it. The high return group fed 82 cattle on the average, while the other groups averaged 330 head. The high group purchased a small proportion of their feed, the low group purchased over half the total that they fed. Crop sales were about the same for each group. The medium group had the highest income per operator, probably because they had a large volume of business and good levels of efficiency. If they could improve their feeding efficiency, their incomes would be even higher. The high return group needs more volume, and could profitably feed more of the crops they produce.

SECTION IV
30 OHIO HOG FARMS

This summary includes data from records kept on 30 Ohio farms with 50% or more of their income from hog sales. Typically, hog sales made up 66-75% of all receipts, and crop sales were 10-15% of the total.

These records were first analyzed individually, then sorted on the basis of net labor and management income per operator. The groups they were sorted into were: High 25%, the 8 highest income farms; low 25%, the 8 with lowest income; and medium 50%, those in between.

TABLE 1. CASH RECEIPTS

	High 25%	Low 25%	Medium 50%
Milk and Cream	$ 1,430	$ --	$ 84
Poultry and Eggs	26	636	--
General Crops	4,816	2,173	4,140
Special Crops	332	170	1,143
Cash Rent and Royalties	103	8	202
Labor Off Farm	220	227	257
Custom Work	177	745	789
Wool	523	113	22
Other Livestock Products	--	17	2
Tax Refund	270	134	232
Patronage Dividend	66	61	66
Breeding Fees Received	--	--	8
Miscellaneous Receipts	457	62	236
Government Payments	2,462	335	763
Market Livestock			
Swine	29,111	10,807	21,988
Cattle	1,738	209	2,260
Veal Calves	44	--	54
Lambs	--	264	46
Total Cash Receipts	$41,775	$15,961	$32,292

Observe that the high income group had much higher total receipts than did the low group. A high proportion of those receipts were from market hogs.

TABLE 2. CASH EXPENSES

	High 25%	Low 25%	Medium 50%
Hired Labor	$ 2,218	$ 310	$ 1,249
Feed Purchased	11,315	4,554	7,300
Farm Supplies	942	296	553
Machinery Repairs	1,321	626	992
Building, Fence, Tile Repairs	294	205	319

Fuel, Oil and Grease	1,309	735	989
Electricity (farm share)	305	206	204
Telephone (farm share)	64	57	73
Miscellaneous Expenses	299	77	361
Seeds and Plants	849	279	594
Fertilizer and Lime	3,828	1,442	2,649
Machine Hire and Trucking	889	265	402
Auto Expense (farm share)	239	292	240
Interest on Notes and Mortgage	961	1,320	1,627
Veterinary and Medicine	997	186	800
Breeding Fees and Registration	38	6	4
Feeder Livestock Purchase	1,576	771	1,718
Taxes	1,286	540	740
Cash Rent	75	124	474
Insurance	273	210	333
Total Cash Expense	$29,078	$12,501	$21,621

In Table 2, notice that cash expenses ran about 75% of cash receipts, in about the same ratio for each income group. Will give this more careful analysis in Table 3. Feed purchased was a sizeable item for each group, in spite of the fact that they had a fair amount of crop sales.

TABLE 3. INCOME AND INVESTMENT

	High 25%	Low 25%	Medium 50%
Capital Gain or Loss			
Raised Breeding Stock	$ 3,125	$ 442	$ 1,464
Purchased Breeding Stock	272	46	106
Machinery and Equipment	6	14	397
Total Capital Gain or Loss	$ 3,403	$ 502	$ 1,967
Net Inventory Change			
Raised Breeding Stock	$ 767	$ 321	$ 970
Market Livestock	9,098	1,708	2,377
Grain, Hay and Supplies	5,657	858	1,847
Total Inventory Change	$ 15,522	$ 2,887	$ 5,194
Depreciation			
Buildings, Fence, Tile	$ 1,786	$ 422	$ 713
Machinery and Equipment	2,589	1,061	1,795
Purchased Breeding Stock	75	113	115
Total Depreciation	$ 4,450	$ 1,596	$ 2,623

Capital Investment			
Purchased Breeding Stock	$ 906	$ 491	$ 619
Raised Breeding Stock	3,967	1,165	2,935
Market Livestock	10,454	3,249	7,466
Grain, Hay and Supplies	12,516	4,336	7,003
Machinery and Equipment	11,848	5,679	9,562
Buildings, Fences, Tile	17,622	9,395	8,063
Land	69,197	22,315	34,387
Total Capital Investment	$126,510	$46,630	$70,035
Capital Efficiency			
Interest Not Yet Charged (5%)	$ 5,365	$ 1,011	$ 1,875
Gross Income Per $1,000 Invested	467	398	539
Overhead Expenses			
Total	$ 12,629	$ 4,882	$ 7,517
As Per Cent of Gross Income	21%	26%	20%
Income			
Gross Income	$ 59,124	$18,759	$37,735
Net Cash Income	12,697	3,460	10,671
Net Farm Profit	27,172	5,253	15,209
Family Labor & Management Income			
Total	21,807	4,242	13,334
Per Full-Time Operator	$ 23,788	$ 5,091	$13,334
Net Margin %	37%	23%	35%

This table presents information used in calculating the various income measures. Capital gain or loss is the gain or loss from sale of breeding stock and machinery or equipment. Net inventory change is the change in inventory of production items, such as livestock feed, and supplies. Capital investment is an average of beginning and closing inventories, to measure investment in the farm business for the year. Under capital efficiency, interest not yet charged is calculated by taking 5% of total capital investment and subtracting interest on notes and mortgages (table 2).

Gross income per $1,000 invested measures capital efficiency. Here, the medium group had the highest efficiency, indicating they were effectively using their capital to produce income. All three groups had good levels of capital efficiency.

Overhead expenses include building, fence and tile repairs, interest on notes and mortgages, taxes, insurance, depreciation, and interest not yet charged. Overhead expense as a per cent of gross income is another measure of capital efficiency. On efficiently operated farms, this figure should run around 25%. All groups did well in this respect, and the medium and high income groups did very well.

Gross income is total cash receipts minus feeder livestock purchases plus total inventory change (Table 3). Net cash income is total cash receipts minus total cash expenses. Net farm profit is net cash income plus total inventory change minus total depreciation,

Family labor and management income is net farm profit minus interest not yet charged. Net margin is family labor and management income as a per cent of gross income. This net margin figure should normally be 25-30% for efficient farms. Here only the low income group fell below this range, and the other groups exceeded it. Nineteen hundred and sixty-five was a very good hog year from a price standpoint. Still, the high income group had a much higher net margin. This, coupled with their high gross income resulted in very high labor and management incomes.

TABLE 4. CROP SUMMARY

	High 25%		Low 25%		Medium 50%	
	Acres	Yield	Acres	Yield	Acres	Yield
Crop Production						
Corn	141	102	74	66	112	98
Soybeans	57	31	16	24	32	32
Oats	2	72	10	34	2	71
Wheat	28	35	23	30	35	37
Alfalfa Hay	9	2.8	5	2	5	2.7
Clover, Mixed Hay	8	2.5	6	4.1	6	2
Green Chop	--	--	--	--	--	--
Corn Silage	4	10	--	--	2	17
Grass Silage	--	--	--	--	1	16
Other	--	--	5	--	6	--
Special Crops	--	--	--	--	4	--
Total Harvested Crop Acres	249		139		205	
Value of Crops						
Fed on Farm		$ 9,609		$ 4,068		$ 7,714
Cash Sales		5,148		2,343		5,283
Change In Inventory		5,657		858		1,847
Total Value of Crops		$20,414		$ 7,269		$14,844
Value of Crops Per Harvested Acre		$ 82		$ 52		$ 72
Machinery Investment Per Harvested Crop Acre		$ 48		$ 41		$ 47
Power and Machinery Costs						
Total		$ 6,939		$ 3,263		$ 4,896
Per Harvested Crop Acre		$ 28		$ 23		$ 24

In Table 4, the high income group had higher yields in most cases, and a higher total acreage in crops. The value of crops per harvested acre provides a measure of cropping intensity.

TABLE 5. LIVESTOCK SUMMARY

	High 25%	Low 25%	Medium 50%
Value of Feed Fed			
Crops Fed	$ 9,609	$ 4,068	$ 7,714
Purchased Feed	11,315	4,554	7,300
Pasture	334	68	256
Total Value Feed Fed	$21,258	$ 8,690	$15,270
Value of Net Livestock Increase	$44,558	$13,792	$27,663
Returns per $1.00 Feed Fed	$2.10	$1.59	$1.81

In Table 5, observe the high proportion of purchased feed fed, but note also the high returns per $1.00 feed fed. Favorable hog prices were a factor in this high return, but again, the high income group did much better than the low group.

TABLE 6. SWINE SUMMARY

	High 25%	Low 25%	Medium 50%
Number Sows and Gilts	50	20	40
Number Litters Farrowed	97	36	71
Pigs Weaned Per Litter	7.53	7.89	7.92
Sales			
Market Hogs Sold	635	221	529
Pounds of Market Hogs Sold	137,017	47,740	109,726
Number Feeder Pigs Sold	28	41	50

Table 6 presents swine production information. The high income group had larger sow herds and hog marketings, but slightly fewer pigs per litter. All had good performance in terms of pigs weaned per litter.

TABLE 7. LABOR EFFICIENCY

	High 25%	Low 25%	Medium 50%
Production Man Work Units			
Crops	174	97	144
Dairy	29	--	3
Swine	166	60	131
Beef Cows	3	--	11
Cattle Fattened	--	8	16
Chickens	--	9	--
Sheep	--	8	1
Total	372	182	306
Months Operator Labor	11	10	12
Man-Year Equivalents of Labor	1.9	1.2	1.6
PMWU Per Man Equivalent	196	152	191
Gross Income Per Man Equivalent	$31,118	$15,482	$23,584

Labor efficiency is measured in productive man work units per man. One unit is the amount of work accomplished by one man in 10 hours, with typical levels of mechanization. Normally on a crop-livestock farm we expect 250-300 PMWU per man. These hog farmers were not up to "standard" in this respect, and the low income group fell well below standard. Increasing output per man would have a considerable effect on their incomes if they could do so without sacrificing efficiency.

TABLE 8. SPECIAL SORT: RETURNS PER $1.00 FEED FED

	High 25%	Low 25%	Medium 50%
Returns per $1.00 Feed Fed	$2.15	$1.33	$1.72
Operator Income	$20,180	$ 6,585	$13,609
Net Margin %	40%	28%	33%
Pigs Weaned per Litter	7.64	7.37	8.21
Number Sows and Gilts	35	31	40
Purchased Feed	$ 7,474	$ 4,792	$ 8,168
Harvested Crop Acres	214	162	202

In Table 8 these farms were sorted on the basis of returns per $1.00 feed fed, a measure of livestock efficiency. There was quite a range of returns, as indicated by the figures in the table. Operator income and net margin were much higher when feed returns were high. Surprisingly, pigs weaned per litter were highest for the medium group, and even the low feed return group had a good average of pigs weaned. Purchased feed cost was the lowest for the low return group, so their low rate of return was not due to excessive purchased feed costs. More detailed records including calculation of feed fed per cwt. of pork produced might uncover the real reason for the difference. In any case, incomes were higher on the farms with the higher returns per $1.00 feed fed.